phosphorylations of p38 and ERK after 15-30 min stimulation through ER. Furthermore, SB203580 and PD98059 significantly inhibited vitisin B induced differentiation. By using Src inhibitor PP2, results further supported that Src is a cross molecule required for vitisin B-induced activation of MAPK and final mineralization.

Conclusion: Vitisin B might act through ER-mediated activation of Src and downstream MAPK to stimulate osteoblastogenesis which contributed to its beneficial effect in prevent bone loss.

Contact: Wen-Fei Chiou, wfchiou@nricm.edu.tw

http://dx.doi.org/10.1016/j.imr.2015.04.107

P1.101

Metabolomic-based evidence for acupiont specificity in treating migraine

Zishan Gao[1], Fanrong Liang[2], Xuguang Liu[2], Xianzhong Yan[3]

[1] *Nanjing University of Chinese Medicine*
[2] *Chengdu University of TCM*
[3] *National Center of Biomedical Analysis*

Purpose: The aim of the current study was to investigate the metabolomic evidence for acupoints specificity in treating migraine by using 1H nuclear magnetic resonance (NMR)-based metabolomic technology.

Methods: We recruited 60 migraine patients and 10 health adults. First, 1H-NMR experiment and multivariate analysis were conducted to characterize metabolic profiling of migraine. Second, migraine patients were randomly assigned to special acupoints group and non-acupoints group. Acupuncture treatment were accordingly practiced on these group lasted for two sessions. 1H-NMR experiment was conducted, multivariate analysis and bioinformatics technique were used to investigate the metabolomic evidence for acupoints specificity in treating migraine

Results: We found that 14 of metabolites in the plasma and 6 of metabolic pathways were significantly related to migraine ($P<0.05$). Importantly, the enhancement of glucose metabolism including increases of citrate, acetate, pyutate ($P<0.05$) and related metabolic pathways such as citrate cycle pathway, pentosephosphate pathway ($P<0.01$) in the plasma of migraine patient were revealed to be the metabolic basis of triggering migraine attack. Intriguingly, metabolic profiling of special acupoints became similar to health adults as acupuncture treatment session increases. 5 metabolites and 4 metabolite pathway, including citrate, acetone, pyruvate, glutamine, creatine and Citrate cycle pathway, were significant reversed after 2 session of acupuncture treatment. In contrast, metabolic profiling of non-acupoints group was clearly separated from health adults as treatment session increases. Interestingly, glutamine, a classic metabolite triggering migraine, was found decreases in both acupoint group and non-acupoint group after acupuncture treatment.

Conclusion: Our data suggest acupuncture might exhibit non-specific effect on both acupoints and non-acupoints by decreasing plasma glutamine therefore reliving migraine attack. Whereas, acupuncture at acupoints were firstly revealed to have special effect on reversing glucose metabolism and Citrate cycle pathway in the plasma of migraine patients thereby treating migraine.

Contact: Zishan Gao, zishang30@sina.cn

http://dx.doi.org/10.1016/j.imr.2015.04.108

P1.102

Licorice and its flavonoids inhibit oxidative damage in the liver

Young Woo Kim[1], Sang Mi Park[2], Hye Lym Seo[2], Mi Hee Jang[2], Ji Yun Jung[2], Ju-Hee Lee[2], Eun Jeong Jang[2], Il Je Cho[2], Sung Hui Byun[2], Sang Chan Kim[2]

[1] *Medical Research Center, Daegu Haany University, College of Korean Medicine*
[2] *Daegu Haany University*

Purpose: Glycyrrhizae Radix (G. radix) is an important herb used in traditional oriental medicine for the replenishment and invigoration of deficient Qi and blood, and is also widely recommended for its life-enhancing properties as well as detoxification.

Methods: In this study, we determined the therapeutic effects of the extract of G. radix and its flavonoids on the liver injury in animals and cells.

Results: Toxicants injections in rats exerted severe liver damage assessed by increased plasma levels of alanine aminotransferase and aspartate aminotransferase in addition to hepatic degeneration and necrosis. These pathological changes were markedly protected by pretreatment with the flavonoids and licorice extract. Moreover, the flavonoids and the extracts pretreatment reversed the decrease in hepatic antioxidant capacity as well as suppressed expression of anti-inflammatory genes in the liver as well as in cells.

Conclusion: These results suggest that the licorice has a protective effect through induction of antioxidant and anti-inflammatory activities. This work was supported by the National Research Foundation of Korea (NRF) Grant funded by the Korea government (MSIP) (No. 2014R1A2A2A01007375), and by the NRF Grant funded by the Korea government (MSIP) (No. 2012R1A5A2A42671316).

Contact: Young Woo Kim, ywkim@dhu.ac.kr

http://dx.doi.org/10.1016/j.imr.2015.04.109